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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,292	02/06/2004	Jung-Hwan Lee	GK-US045029	4950

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GLOBAL IP COUNSELORS, LLP  
1233 20TH STREET, NW, SUITE 700  
WASHINGTON, DC 20036-2680

EXAMINER
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NGUYEN, SIMON

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/772,292	LEE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SIMON D. NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because figs. 1, 3, 8-9 do not label (name) components. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5-6, 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiu et al. (2004/0087292).

Regarding claim 1, Shiu discloses a receiver having a DC offset compensation and a gain control (fig. 2), comprising: a LNA; a mixer; a first offset compensation amplifier (230); a second offset compensation amplifier (250); a VGA (255) (paragraphs 25-29); a controller (280) controls an offset detector (DC offset estimating) and an offset compensator (calibration or adjustment) (paragraphs 47-50, 59, 65-71).

Regarding claim 5, Shiu further discloses a filter (235 of fig. 2) after the first offset amplifier.

Regarding claim 6, Shiu further discloses that the filter constructs as a cutoff frequency and an order of the filter can be varied (paragraphs 27-28, 40).

Regarding claims 11-14, Shiu further discloses a switch connected between the second DC offset to the controller (DC offset compensator or cancellation 540) (a line connects between DC offset 250 and the controller 280 in fig.1 or a line connects between DC cancellation control 540 to DC offset 250 of fig.5), wherein the DC cancellation control as the DC offset compensator having a memory (register) for storing data; the DC offset controller includes a DC detector (DC estimate 560), wherein

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the DC offset controller adjusts (increases/decreases) the gain (figs. 5-6, paragraphs 58-82).

Regarding claim 15, this claim is rejected for the same reason as set forth in claim 1.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 7-10, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiu et al. (20040087292) in view of Hayashi et al. (2002/0094788).

Regarding claims 2-3, Shiu does not disclose in details about the first and second DC offset compensations.

Hayashi discloses a DC offset compensation in a receiver (fig.1) having a plurality of DC offset compensation amplifiers (PGA's), wherein each of first and second DC offset amplifiers includes first, second, third, and four elements, each having a gate, a drain, and a source; load impedances; a bias current source (figs. 4-7). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Shiu, modified by Hayashi in order to improve the quality of a received signal.

Regarding claim 4, Shiu further discloses a register and a controller for controlling data stored in the register according to the offset (paragraphs 61, 88). Hayashi also discloses a controller, a register, wherein the controller controls data stored in the register for compensating the offset (paragraphs 47, 56, 79).

Regarding claims 7-9, Shiu discloses the controller (detector included) compares differential output signals (paragraph 74, figs. 5-6).

Hayashi discloses a controller compares differential output signals of the VGA and outputting an average value (paragraphs 53, 56, 78, fig. 4).

Regarding claim 10, Shiu further discloses the VGA including a plurality of VGAs (paragraphs 25, 28, 29, 48, 68, 81).

Hayashi also discloses a plurality of VGAs (paragraphs 67, 78, 82).

Regarding claim 17, Shiu discloses a receiver having an offset compensation amplifier (250); a VGA (255); an offset detector (560); an offset compensator (540) (fig.5). it should be noted that an offset compensation amplifier having two inputs and two outputs are well known to those skilled in the art. however, Shiu does not specifically disclose the offset compensation amplifier having two inputs and two outputs.

Hayashi discloses a receiver having an offset compensation amplifier (PGA) wherein the PGA has two inputs and two outputs (fig.4). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Shiu, modified by Hayashi in order to improve the quality of a received signal.

Regarding claim 16, Hayashi discloses a capacitor included in means for eliminating the DC component (paragraphs 4, 46).

Regarding claim 18-19, these claims are rejected for the same reason as set forth in claims 1, 7 as taught by Shiu for DC offset calibration in a receiver (figs. 5-6). However, Shiu does not specifically mark down first, second to fifth steps as claimed. It should be noted that even though Shiu does not mark down each step as claimed, the method for calibrating the DC offset in the receiver as taught by Shiu obviously including the steps described in the application.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Akamine et al. (2003/0064696) discloses a receiver having PGAs that implement gain change by adjusting the gains in steps to compensate noise or DC offset (abstract); Feng (6,862,439) discloses offset compensation in a receiver comprising; a LNA, offset compensation amplifier, a VGA, a detector, and a DC offset compensator (figs.2-7).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Nguyen whose telephone number is (571) 272-7894. The examiner can normally be reached on Monday-Friday from 7:00 AM to 4:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban, can be reached on (571) 272-7899.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

600 Dulany, Alexandria, VA 22314

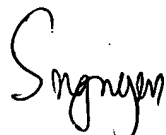
Or faxed to:

(571) 273-8300 (for formal communications intended for entry)

Hand-delivered response should be brought to Customer Service Window located at the Randolph Building, 401 Dulany, Alexandria, VA, 22314.

Simon Nguyen

June 30, 2006



**SIMON NGUYEN**  
**PRIMARY EXAMINER**